Algebraic Fractions - Equations

Ex1

$$\frac{x+1}{2} + \frac{x+2}{5} = 3$$

$$\frac{10(x+1)}{2} + \frac{10(x+2)}{5} = 10 \times 3$$

$$5(x+1) + 2(x+2) = 30$$

$$5x + 5 + 2x + 4 = 30$$

$$7x + 9 = 30$$

$$7x = 30 - 9$$

$$7x = 21$$

$$x = \frac{21}{7}$$

$$x = 3$$

Ex2

$$\frac{2x-1}{3} + \frac{3x+1}{4} = 7$$

$$\frac{12(2x-1)}{3} + \frac{12(3x+1)}{4} = 7 \times 12$$

$$4(2x-1) + 3(3x+1) = 84$$

$$8x - 4 + 9x + 3 = 84$$

$$17x - 1 = 84$$

$$17x = 84 + 1$$

$$17x = 85$$

$$x = \frac{85}{17}$$

$$x = 5$$

Exercise

b $\frac{x+2}{4} + \frac{x+1}{7} = 3$

c $\frac{4x+1}{3} - \frac{x+2}{4} = 2$

e $\frac{2x+1}{2} - \frac{x+1}{7} = 1$

f $\frac{3x+1}{5} - \frac{5x-1}{7} = 0$

b) $\frac{x+2}{4} + \frac{x+1}{7} = 3$

$\frac{28(x+2)}{4} + \frac{28(x+1)}{7} = 28 \times 3$

$7(x+2) + 4(x+1) = 84$

$7x + 14 + 4x + 4 = 84$

$11x + 18 = 84$

$11x = 84 - 18$

$11x = 66$

$x = \frac{66}{11}$

$x = 6$

c) $\frac{4x+1}{3} - \frac{x+2}{4} = 2$

$\frac{12(4x+1)}{3} - \frac{12(x+2)}{4} = 2 \times 12$

$4(4x+1) - 3(x+2) = 24$

$$16x + 4 - 3x - 6 = 24$$

$$13x - 2 = 24$$

$$13x = 24 + 2$$

$$13x = 26$$

$$x = \frac{26}{13}$$

$$x = 2$$

e) $$\frac{2x+1}{2} - \frac{x+1}{7} = 1$$

$$\frac{14(2x+1)}{2} - \frac{14(x+1)}{7} = 1 \times 14$$

$$7(2x+1) - 2(x+1) = 14$$

$$14x + 7 - 2x - 2 = 14$$

$$12x + 5 = 14$$

$$12x = 14 - 5$$

$$12x = 9$$

$$x = \frac{9}{12}$$

$$x = \frac{3}{4}$$

f) $$\frac{3x+1}{5} - \frac{5x-1}{7} = 0$$

$$\frac{35(3x+1)}{5} - \frac{35(5x-1)}{7} = 0 \times 35$$

$$7(3x+1) - 5(5x-1) = 0$$

$$21x + 7 - 25x + 5 = 0$$

$$12 - 4x = 0$$

$$12 = 4x$$

$$\frac{12}{4} = x$$

$$x = 3$$